

WHAT IS CLAIMED IS:

1. A semiconductor photocathode emitting electrons in response to an incidence of infrared radiation, comprising:

5 a semiconductor substrate made of GaSb;

a light absorbing layer made of  $\text{InAs}_{(1-x)}\text{Sb}_x$ , where,  $0 < x < 1$ ; and

10 a first compound semiconductor layer having wider energy band gap than that of said light absorbing layer, said first compound semiconductor layer including Al,

wherein said first compound semiconductor layer is formed between said semiconductor substrate and said light absorbing layer.

15 2. The semiconductor photocathode according to Claim 1, further comprises a second compound semiconductor layer provided so as to sandwich said light absorbing layer together with said first compound semiconductor layer.

20 3. The semiconductor photocathode according to Claim 2, wherein both said first and second compound semiconductor layers are made of  $\text{Al}_y\text{Ga}_{(1-y)}\text{Sb}$ , where,  $0 < y < 1$ .

25 4. The semiconductor photocathode according to Claim 2, wherein both said first and second compound semiconductor layers are made of  $\text{Al}_y\text{Ga}_{(1-y)}\text{As}_z\text{Sb}_{(1-z)}$ ,

where,  $0 < y < 1$ , and  $0 < z < 1$ .

5. The semiconductor photocathode according to  
Claim 2, wherein both the first and second compound  
semiconductor layer comprise a superlattice layer  
formed by a stack of alternate layers of AlSb and GaSb.

6. The semiconductor photocathode according to  
Claim 3 or 4, wherein  $y$  is set to be in a range equal  
to or greater than 0.19 to less than 1.0.

7. A photoelectric tube comprising  
10 the semiconductor photocathode according to any  
one of Claims 1 to 5; and

15 an anode related to said semiconductor  
photocathode, wherein said semiconductor  
photocathode and said anode are enclosed in a vacuum  
vessel.